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Nurse Practitioners' Developmental Screening And Referral Practices For Children With Developmental Delays

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NURSE PRACTITIONERS' DEVELOPMENTAL SCREENING AND REFERRAL PRACTICES FOR CHILDREN WITH DEVELOPMENTAL DELAYS

By

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Abstract

Children with developmental delays benefit from participation in early intervention programs. Yet many children are not screened for developmental delays, and many children with developmental delays are not referred to early intervention programs. Families depend on their primary health care providers for the detection of developmental delays and information about services available for their children with developmental delays. The primary care nurse practitioner is in an ideal position to screen for delays, provide necessary referrals for services, and assist the families in maximizing their self-care potentials. Orem's self-care deficit theory of nursing served as the theoretical framework for the research. This descriptive study explored developmental screening and referral practices of pediatric and family nurse practitioners for children with developmental delays. The researcher-designed Early Intervention Questionnaire was mailed to 258 pediatric and family nurse practitioners currently certified in Mississippi. A convenience sample of 120 returned questionnaires was used. Responses to the instrument were analyzed using descriptive statistics with content analysis according to recurrent themes of the open-ended questions. Less than half of pediatric and family nurse practitioners in Mississippi reported performing developmental screening on children under five years old, although 70.6% felt adequately prepared to do so. Less than two-thirds of pediatric and family nurse practitioners related being familiar with early

intervention programs, and only slightly more than one-third had ever referred to an early intervention program. Those nurse practitioners who reported familiarity with early intervention programs listed visits, mail, and workshops as the methods by which they found out about early intervention programs. Based on the findings of this study, implications for nursing included experienced nurse practitioners mentoring inexperienced nurse practitioners to impress upon them the importance of screening and referring children with developmental delays and nurse practitioners striving to lift the barriers of potential resistance to children's participation in early intervention programs. Recommendations included utilization of developmental screening tools to detect children with or at risk for developmental delays, education of nurse practitioners on the benefits of participation in early intervention programs by children with developmental delays, and facilitation of improved networking between nurse practitioners and early intervention program staff.

Dedication

In memory of my sister

Debbie Chisolm

who shared with me her love for children

with developmental delays

and in honor of my parents

Thomas and Merle Chisolm

who have always given me

their unconditional love and support

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Chapter I

The Research Problem

Early intervention programs are services including physical therapy, occupational therapy, speech-language therapy, and educational programs for children birth through five years old with developmental delays. Designed to maximize the potential of infants and toddlers with developmental delays, early intervention programs also seek to modify the outcomes of children with disabilities by helping them develop skills in the areas where there are deficits. Early intervention had a different meaning a generation ago when parents of children with developmental disabilities such as Down syndrome were told their children should be placed in institutions, and life expectancy was approximately nine years (Riccitiello & Adler, 1997). Most parents today elect to keep their children with developmental disabilities at home. Support for the decision to keep children with disabilities at home was given by the American Academy of Pediatrics in a 1995 review of infants born at or before 25 weeks gestation: "Families should be counseled that, despite the high rate of overall disability, many of these children are educable and can function within their family unit" (American Academy of Pediatrics, 1995, p. 974).

Federal legislation has helped ease the burden on parents trying to integrate children with developmental disabilities into home, community, and school life. Public Law 99-457 mandated states to develop and implement comprehensive, coordinated early intervention programs for infants and toddlers from birth to three; Public Law 102-119

amended the law to include services to the families of these children (Roberts-DeGennaro, 1996). Every state in the U.S. has a designated lead agency responsible for coordinating services for children with developmental disabilities and their families. Early intervention programs provide physical therapy, occupational therapy, speech-language therapy, and special educational services for infants and toddlers exhibiting delays in these motor, communication, cognitive, social, or self-help skills.

McCormick (1997) suggested that developmentally focused interventions improved psychosocial development among very low birth weight infants, and Ramey and Ramey (1994) affirm that early intervention can substantially improve children's intellectual performance. Infants and children who have developmental disabilities or are at risk for developmental disabilities have had early intervention services available in the United States for over twenty years (Britain, Holmes, & Hassanein, 1995). Parents of developmentally delayed children depend on their primary health care providers for information about services available for their children. Yet there is evidence that a substantial number of children are not being referred for these essential services (S. Miller, member and former co-chair of State Interagency Coordinating Council of Mississippi, personal communication, November 29, 1997). This research was designed to explore and describe developmental screening and referral practices of pediatric and family nurse practitioners in Mississippi for children with developmental delays.

Establishment of the Problem

Many children with developmental delays are not referred to early intervention programs. Possible explanations for this problem are failure to recognize the developmental disability and lack of knowledge about available services. Britain et al.

(1995) cited parents' procrastination, not taking the developmental problems seriously, and ignoring suspicions as reasons for late referrals to early intervention programs. Another problem was that the expense incurred by primary care providers performing developmental screenings was not adequately reimbursed by third party payers (Glascoe, Foster, & Wolraich, 1997), therefore delays that are not part of a readily identifiable diagnosis may go undetected. Britain et al. (1995) also described skepticism about developmental programs on the part of health care providers as a reason for a low referral rate. Parents are often not aware of services available for children with disabilities. Sontag and Schacht (1994) reported that parents most often requested information about the availability of services, that medical doctors were the only source identified by a majority of parents as their source of useful information, and that many parents experienced problems getting the information they need.

Infants and toddlers participate in early intervention programs for various reasons from diagnoses of spina bifida, cerebral palsy, and Down syndrome to being deemed at risk for developmental delays due to prematurity, chronic illness, or family history of developmental disabilities. Referred by family or health care providers, children receive comprehensive, multidisciplinary evaluations to determine eligibility prior to enrollment in early intervention programs. Evaluation team members may include psychologists, psychometrists, speech-language pathologists, physical therapists, occupational therapists, and special education teachers. Typical criteria for admission to an early intervention program is a 25% delay in at least two of the following areas: cognitive, gross/fine motor, receptive/expressive communication, social, and self-help skills (Hudspeth Regional Center, 1995).

Children may also be enrolled on an "at risk" basis. For example, a four-week-old baby with Down syndrome will not usually meet eligibility criteria according to standardized developmental assessments. Because it is generally accepted that delays will manifest themselves as the child ages, however, this child can be admitted prior to exhibiting delays. For admission to an early intervention program to occur, the child must have had the detection of a developmental delay, a physical examination by a physician or nurse practitioner, and a referral to the early intervention program. After admission each child's strengths and needs are assessed in each of the five skill areas. Based on these strengths and needs, goals are devised by an interdisciplinary treatment team which includes parents. Plans for meeting each goal are implemented. Each child is reevaluated frequently to determine appropriateness of goals and progress toward meeting the goals. As goals are mastered, new goals are added so that the child is continuously moving toward achievement of age-appropriate skills (Hudspeth Regional Center, 1995).

The consequences of not recognizing developmental delays in children are monumental. Children with developmental delays who do not receive early intervention services during the crucial first few years of life could end up institutionalized in facilities for people with mental retardation and developmental delays. Such a consequence generates a huge toll not only on quality of life but also on tax dollars. In 1994 the national average annual cost to taxpayers of housing one person in a state institution for persons with developmental disabilities was $82,228. The national average annual cost to taxpayers, however, for the most expensive support services for a developmentally disabled person living at home (including both people who required 24-hour support and people who required fewer services) was $27,649 (Free Hand Press, Inc., 1995).

Experts in the field report that children with developmental disabilities and their families benefit immensely from participation in early intervention programs. Most programs incorporate parent teaching into their curriculum. Parents are encouraged to learn techniques in infant stimulation, gross motor, fine motor, language, and educational skills that they can carry out at home with their children. Program staff stress that parental involvement is instrumental in children's development. Family support groups, workshops, and on-going educational services are part of most early intervention programs (E. Butler, Executive Director, Mississippi Developmental Disabilities Planning Council, personal communication, November 27, 1997). Children who participate in early intervention programs show greater gains in cognitive, self-help, and social-behavioral skills that children who do not. At 6-year-old evaluations for special education eligibility, early intervention participants emerged at a higher ruling level (specific learning disability instead of educationally disabled) than children who were not early intervention participants (Elizabeth Logan, Referral to Placement Coordinator, Lauderdale County School System, personal communication, April 17, 1998). Parents have frequently expressed their beliefs that their children with developmental delays are developmentally more advanced than they would have been without early intervention. These parents also express appreciation for the support given to them as they cope with parenting children with disabilities (P. McRaney & L. Sullivan, parents of children with disabilities, personal communication, October 24, 1997).

Referral to early intervention programs is imperative for children with developmental disabilities. With a professional focus on health care maintenance, disease prevention, and early detection, nurse practitioners are in a position to serve as leaders in

screening children for developmental disabilities. Nurse practitioners have a responsibility to detect developmental disabilities in infants and children and insure appropriate evaluations and services for those children (Sontag & Schacht, 1994). Yet many children with developmental delays are not being referred for services. According to one early intervention specialist (S. Miller, personal communication, November 29, 1997), possible reasons for this include primary health care providers' unfamiliarity with early intervention services, providers' reluctance to encourage referrals in an effort to protect the feelings of parents, and early intervention program staff's failure to publicize the existence of such programs.

Significance to Nursing

Early intervention programs remain an untapped resource for many children with disabilities. As primary sources of information for parents, nurse practitioners should be knowledgeable about developmental screenings, early intervention programs, and routes of patient access to the programs. Yet no research documenting nurse practitioners' role in developmental screening and referrals for children with delays was found.

The Individuals with Disabilities Education Act (IDEA), which mandates a free and appropriate public education for all children with disabilities, was reauthorized on June 4, 1997 (Tharp, 1997). During the signing ceremony President Bill Clinton stated, "To the 5.8 million children whose futures are in the balance, we are saying, 'We believe in you; we believe in your potential, and we are going to do everything we can to help you develop it'" (Tharp, 1997, p. 6). In the spirit of this bill, nurse practitioners should recognize that if children with disabilities are to succeed in life, they need early

intervention. Early intervention can happen only if developmental screening and referral take place first.

As Medicaid's HealthMax System (a Health Maintenance Organization-type system for Medicaid recipients) takes effect in Mississippi, nurse practitioners in private settings will have the responsibility for detecting developmental delays in a greater number of children. Because the local Health Departments cannot serve as primary providers under the HealthMax system, children who traditionally relied on the Health Department for well-child checks will be seeing private providers for well-child visits, including developmental screening, as well as sick care (Elva Britt, R.N., Public Health Nurse, Lauderdale County Health Department, personal communication, April 15, 1998).

Included in this study were implications for course content in schools of nursing. Curricula in nurse practitioner programs should include a holistic approach to caring for the family. Information on developmental screening and referral sources should be included. Implications for further research in the area of developmental screening and referral practices also exist. The family depends upon the nurse practitioner not only in times of illness but also to recognize when normal development is not occurring and to secure appropriate intervention for the person with the developmental disability. These are key elements in the nurse practitioner focus on health maintenance, promotion, and prevention of complications.

Theoretical Framework

Dorothea E. Orem's self-care deficit theory of nursing served as the theoretical framework for the study. According to Orem (1985), a self-care demand is a humanly constructed entity with an objective basis in information that describes an individual

structurally, functionally, and developmentally, and is based on the theory that self-care is a human regulatory function and in facts and theories from the human and environmental sciences. Orem further describes self-care agency as the complex acquired ability to meet one's continuing requirements for care that regulates life processes, maintains or promotes integrity of human structure and functioning and human development, and promotes well-being. A self-care deficit is as follows:

> A relation between the human properties therapeutic self-care demand and self-care agency in which constituent developed self-care capabilities within self-care agency are not operable or not adequate for knowing and meeting some or all components of the existent or projected therapeutic self-care demand (Marriner-Tomey, 1994, p. 184).

Children with developmental delays exhibit self-care deficits in that they are not able to perform skills/tasks in five developmental domains (cognitive, motor, communication, social, and self-help skills) like typically-developing children. Parents of children with developmental delays are dependent-care agents who provide infant and child care (Marriner-Tomey, 1994). Nurses participating in early intervention use wholly compensatory, partly compensatory, and supportive-educative nursing systems in their interactions with children with developmental delays and their families. Chinn and Kramer (1995) state that wholly compensatory nursing systems are used when patients are not able to control their movement and position, partly compensatory nursing systems are for patients with limited movements because of pathology or injury, and supportive-educative nursing systems are for patients needing to learn self-care measures. In her discussion of patients with genetic and developmental defects and biological immaturity,

Orem states, "Health care is oriented to making adjustments and adaptations necessitated by the defect or undeveloped state and to supplying the environmental conditions necessary to support life, facilitate integrated functioning, and contribute to present and future normalcy in daily living" (Orem, 1985, p. 200). Nurse Practitioners who refer to early intervention programs choose appropriate nursing systems based on the functioning level of the child. The supportive-educative nursing system is typically used in working with families of children with developmental delays to maximize the families' dependent-care agency potentials. This study explored reasons affecting nurse practitioners' decisions to intervene or not to intervene to positively influence the self-care potential of children with developmental delays and their families.

Assumptions

The following assumptions were made for this study:

1. Children with developmental delays benefit from participation in early intervention programs.

2. Parents of children with developmental delays depend on their primary health care providers for information about services for their children.

3. Children with developmental delays exhibit self-care deficits.

4. Parents of children with developmental delays are dependent-care agents.

5. Pediatric and family nurse practitioners can intervene with developmentally delayed children and their families to promote self-care and dependent-care.

Statement of the Problem

Evidence from the literature as well as anecdotal reports indicate that children with developmental delays benefit from participation in early intervention programs. Yet

many children with developmental delays are not referred to early intervention programs. Inherent to the nurse practitioner role are prevention measures such as screening for delays and referral to appropriate services, yet no research was found which documented the role nurse practitioners are taking in screening children for developmental delays and referring children with developmental delays to early intervention programs. The purpose of this study was to explore and describe pediatric and family nurse practitioners' developmental screening and referral practices for children with developmental delays to early intervention programs.

Research Questions

The study was guided by two research questions:

1. What are the developmental screening practices of pediatric and family nurse practitioners?

2. What are the referral practices of pediatric and family nurse practitioners for children with developmental delays to early intervention programs?

Definition of Terms

1. Developmental screening practices

Theoretical definition - The use of developmental screening instruments (such as the Batelle, the Developmental Profile II, or the Denver Developmental Screening Test) to test children birth through five years old for developmental delays.

Operational definition - The self-reported use of developmental screening instruments by pediatric and family nurse practitioners in Mississippi to test children birth through five years old for developmental delays as measured by the Early Intervention Questionnaire.

2. Pediatric nurse practitioners

Theoretical definition - Registered nurses prepared to provide primary health care for children through a formal, organized educational program that meets guidelines established by the profession (American Nurses Publishing, 1995, p. 3).

Operational definition - Advanced practice nurses in Mississippi whose names appear on the list of pediatric nurse practitioners currently certified in the state.

3. Family nurse practitioners

Theoretical definition - Registered nurses prepared to provide primary health care for families through a formal, organized program that meets guidelines established by the profession (American Nurses Publishing, 1995, p. 3).

Operational definition - Advanced practice nurses in Mississippi whose names appear on the list of family nurse practitioners certified in the state.

4. Referral practices

Theoretical definition - Directing a patient to a needed service.

Operational definition - A pediatric or family nurse practitioner securing of services such as physical therapy, occupational therapy, speech-language therapy, and educational programs for children birth through five with developmental delays as measured by the Early Intervention Questionnaire.

5. Children with developmental delays

Theoretical definition - Children birth through five years old who exhibit at least a 25% delay in at least two of the following areas: cognitive, motor, communication, social, and self-help skills, or those children who are at risk for delays.

Operational definition - Children birth through five years old who are recognized by pediatric and family nurse practitioners in Mississippi as being developmentally delayed or at risk for developmental delays.

6. Early intervention program

Theoretical definition - A service including physical therapy, occupational therapy, speech-language therapy, and educational programs for children birth through five years old with developmental delays.

Operational definition - A service used by pediatric and family nurse practitioners to refer children birth through five years old with developmental delays for physical therapy, occupational therapy, speech-language therapy, and educational programs.

Chapter II

Review of the Literature

A review of literature was conducted to determine the status of current research regarding primary health care providers' developmental screening and referral patterns for children with developmental delays. Based on that review, the following six studies, which were most closely aligned to the proposed research, revealed issues related to early intervention.

Britain et al. (1995) used a descriptive design to study the medical and developmental problems of 698 children referred to the Infant Development Center during a fifteen year period from January 1975 to December 1989. The Infant Development Center, located in Johnson County, Kansas, served children birth to three plus years old with developmental disabilities. Children referred to the Infant Development Center by health care providers, family, or friends participated in physical, occupational, speech, and educational therapy. The goals of therapy included achievement of normal posture and voluntary movements, developing receptive and expressive language skills, and learning preacademic skills. "Intervention at the Infant Development Center is based on a neurodevelopmental approach, a primary goal of which is to facilitate normal muscle tone and automatic reactions..." (Britain et al., 1995, p. 635). Britain et al. examined admission trends over time and the value of early intervention for infants and children with developmental disabilities.

Developmental quotient (DQ) was computed by dividing the developmental age by the chronological age (DA/CA). The term mild developmental delay was used to describe children whose developmental age was less than but more than half of their chronological age (DQ > 0.50). Moderate or severe developmental delay was used to describe children whose developmental age was half or less than half of their chronological age (DQ $\leq$ = 0.50). Mostly motor delays described children whose delays involved gross motor rather than fine motor, speech, or cognitive skills. Criteria for a diagnosis of microcephaly was head circumference below the fifth percentile or a difference of more than two percentile levels below height and weight measurements. Included in other syndromes were Lowe, Cornelia de Lange, tuberous sclerosis, Hurlerlike, Turner, and Apert syndromes.

Data were gathered from the children's records and included "birth date, admission date, admission chronological age in months, admission developmental age in months and developmental quotient computed by DA/CA, gestational age, birth weight, sex, and presenting medical problems" (Britain et al., 1995, p. 636). The impact of the program, measured by beginning and ending developmental quotients, was examined for 464 children who stayed in the program for at least six months. The researchers used the following statistical analyses: (a) Chi-square tests to determine gender differences, (b) paired t-tests to compare mean values of gestational age and birth weight and to compare admission and discharge developmental quotients, (c) single sample t-tests to determine the significance of difference from a 40-week gestational age, and (d) a test for linearity of trend in referrals of different medical problem groups.

Britain et al. (1995) found that admission age ranged from a mean of 6.6 months for children with Down syndrome to a mean of 39.9 months for children with speech articulation problems. Children with diagnoses readily apparent at birth or shortly thereafter were referred earlier than children with speech articulation problems, behavioral problems, and autism. The largest group of children referred were those with mild developmental delays (48.6%). There were more girls than boys in the moderate/severe developmentally delayed ($p = 0.03$) and microcephaly ($p = 0.08$) groups, and more boys than girls were in the mildly developmentally delayed ($p = 0.03$), behavior problem ($p = 0.04$), and speech articulation problem ($p = 0.003$) groups. A downward referral trend over time was shown in mild developmental delays ($p = 0.06$), increased ($p = 0.06$) or decreased ($p = 0.04$) muscle tone, mostly motor problems ($p = 0.02$), and hydrocephalus ($p = 0.08$). An upward referral trend was shown in seizure disorders ($p = 0.017$), microcephaly ($p = 0.09$), Down syndrome ($p < 0.0001$), and autism ($p = 0.07$). Mean gestational ages for groups of children ranged from 36.1 to 39.8 weeks. The developmental quotients from admission to discharge were relatively stable except for an increase over time in the postnatal trauma group, mostly speech problems group, and speech articulation problems group, and a decrease in the intrauterine infection and Down syndrome groups.

Britain et al. (1995) concluded that early referrals of children with Down syndrome were related to the early diagnosis instead of developmental delays as children with Down syndrome typically have age-appropriate scores during the first few weeks of life but show a decline in DQ with age. Late admissions of children with mild delays,

speech, and behavior problems were often related to procrastination by the parents or the approaching of kindergarten age. The authors pointed out that:

> Lack of increase in the DQ in developmentally disabled children should not be construed as a negative outcome, any more than we would view a developmentally normal child's maintenance of his/her intelligence quotient from kindergarten through sixth grade as a failure of the educational program (Britain et al., 1995, p. 638).

Britain et al. concluded that "recognition of developmental problems by parents as well as physicians affects the time of intervention" and that "we must be alert to problems in babies regardless of their gestational age and birth weight" (Britain et al., 1995, p. 638).

The Britain et al. (1995) study is pertinent to the proposed research for the several reasons. Facilitating a child's development to his/her maximum potential and preventing regression in skills mastered are essential to the nurse practitioner's focus on health maintenance, disease prevention, and early detection. Nurse practitioners are in a unique position to identify children with developmental delays and refer them to early intervention programs. The proposed study will examine developmental screening and referral practices of nurse practitioners in an effort to understand why screenings and referrals are or are not conducted.

In a related study, Eiserman's (1995) longitudinal comparison of the costs and effects of two alternative forms of early intervention that differed with respect to the roles assumed by parents and professionals: a home parent training intervention and a clinic-based, low parent involvement intervention. The randomized, experimental study was

conducted to contribute to the knowledge base of practices regarding the alternatives that exist for parents' and professionals' roles in intervention.

Naive diagnosticians were used to administer a wide variety of standardized measures focusing on both child and family functioning to participants in both a home parent training program and a clinic-based, low parent involvement program of early intervention. The study was conducted over a 42-month period in a western, suburban community in which forty 3- and 4-year-old children with moderate speech and language disorders were assigned to one of two (home-based, high parent involvement or clinic-based, low parent involvement) interventions related to speech and language. At the time of enrollment, children in both groups performed below the 5th percentile on two standardized articulation/sounds tests, below the 14th percentile on a standardized syntax test, and were at least 6 months delayed in one or more of the domains of the Batelle Developmental Inventory. The children were stratified by age and speech ability and then randomly assigned from within the strata to one of the two programs.

Results of follow-up testing 42 months after the initiation of the interventions indicated that the home parent training group performed as well as the clinic-based group on measures of speech and language functioning, the primary area of delay for all subjects, as well as on measures of general development and family functioning. Eiserman (1995) reported that comparable longitudinal effects of the two interventions examined in this study supported the viability of programs that offer options to parents and the need for interventionists to be trained broadly enough to be able to assume a variety of roles and to provide a range of services.

The Eiserman (1995) study contained a number of pertinent considerations for nurse practitioners providing services to infants and toddlers. Although the commonly-held belief is that early intervention programs that incorporate a high level of parent participation are superior to those that do not, there is limited empirical evidence that such approaches result in superior effects. Research findings such as those of Eiserman do not support the idea that parental provision of direct services to children with developmental disabilities is a preferred practice. Nurse practitioners must be familiar with the broad range of services available to children with disabilities so that parents can be assisted in making informed choices.

Another issue which often emerges around the management of developmental disabilities is cost-effectiveness. Using a retrospective research design, Glascoe et al. (1997) assessed the costs and benefits of various approaches to early detection of developmental disabilities. Approximately twelve percent of all children have developmental disabilities including speech-language impairments, mental retardation, emotional and conduct disturbances, autism and related developmental disorders, physical and health impairments, and traumatic brain injury. Early intervention positively affects outcomes for children with developmental disabilities, and early intervention is dependent upon early detection. The expense for this early detection is often thrust upon health care providers. Reimbursement through Medicaid's Early and Periodic Screening, Diagnosis, and Treatment (of which developmental screening is only a small part) is about $33. Many third-party payers do not cover well-child visits. Society benefits from early detection of developmental disabilities by saving dollars and human potential, yet

society bears little of the cost of early detection. Health care providers have a need for developmental screening tools that are reliable and cost-effective.

Glascoe et al. (1997) employed secondary analysis by using cost-benefit analyses based on data from previously published studies of developmental screening tests. The data included two separate samples totaling 247 children aged zero to six years and their parents. The first sample included 103 families randomly selected from day care centers serving largely low-income children. The second sample was used to cross-validate the results and included 144 pediatric patients seeking well-child care in teaching hospitals or private practices. The researchers evaluated the costs of approaches to early detection of developmental disabilities and examined the costs of screening, diagnostic evaluations, and treatment for four approaches. The first approach involved assessing parental concerns only. A two-item questionnaire addressed parents' concerns about their children's developmental and behavioral status. The second approach involved direct screening measures by combining parental reports and direct elicitation to assess children's developmental skills. The Denver-II and the Batelle Developmental Inventory Screening Test were used. The third and fourth approaches used a combination of the first and second. The third approach involved two-stage positive screening. Children were directly screened if parents expressed a developmental concern in the first stage. Only children whose parents raised concerns and who had a low score on direct screening (positive for both measures) were referred for full diagnostic evaluations and interventions if indicated. The fourth approach involved two-stage negative screening. Direct screening tests were administered to all children whose parents' questionnaires did not indicate developmental concerns. Then children with positive results on either the

parental questionnaire or direct screening were referred for diagnostic evaluations and intervention as indicated.

For both samples of children a licensed psychological examiner administered direct screening tests including the Denver-II and/or the Batelle Developmental Inventory Screening Test. A second examiner, blinded to the results of the screening tests, elicited parents' concerns. In both samples, diagnostic impressions or diagnostic test results were used to determine the extent to which each of the four approaches correctly identified those children with (and without) developmental disabilities. The two-stage negative approach was more accurate than the other approaches.

A variety of costs were considered in comparing the four approaches. The costs of administering the screening tools, interpreting the results for each detection approach, diagnostic testing, and treatment were evaluated. The costs of treatment were included because without this consideration the cost picture was limited. Early intervention had conflicting effects on costs. Intervening early increased costs as children received services earlier. Because those services reduced the need for later services, however, overall costs were reduced.

Considering short-term costs to health care providers only, the single-stage approach involving parental concern was the least costly, and the two-stage negative approach was the most costly. When the long-term costs and benefits to society of early detection and early intervention were factored together, none of the approaches was markedly superior to the others. Capitation arrangements and financial responsibility for diagnostic evaluations made a difference in health care providers' costs.

Glascoe et al. (1997) concluded that health care providers are not well compensated for detecting developmental disabilities in children, which is a critical service to society. Another conclusion was that the use of parents' concerns as a screening technique was a useful tool offering substantial savings over the other methods. Recommendations were for health policymakers and third-party payers to reconsider the currently minimal and short-sighted investment in the first critical step toward early intervention services - screening for childhood disabilities by primary health care providers. Certainly it is in the best interest of society for primary health care providers to detect disabilities in children as early as possible. Contrarily, it is in health care providers' best financial interest to do nothing toward early detection. If primary health care providers are to perform a service, they should be reimbursed appropriately.

The current research study examined the developmental screening and referral patterns of nurse practitioners for children with developmental delays. Nurse practitioners have the potential to be at the forefront in detecting children with developmental delays and insuring appropriate and early intervention for them. With this responsibility comes the expense of developmental screening. Included in the study were items related to reimbursement for developmental screening, cost-effectiveness of screening, and the effect of these items on referral patterns, which are important factors in assessing nurse practitioners' motivation to participate in developmental screening and referral.

Cost-effectiveness in developmental screening is often best achieved with the use of more sensitive screening tools. A study by Rossman et al. (1994) sought to validate the Clinical Adaptive Test/Clinical Linguistic and Auditory Milestone Scale (CAT/CLAMS) as a pediatric neurodevelopmental assessment tool useful in determining the language and

problem-solving abilities of infants and toddlers. The hypothesis for the study was that the CAT/CLAMS would be shown to correlate favorable to the Bayley Mental Developmental Index (MDI), the generally accepted standard for infant developmental tests.

The study population consisted of 418 infants recruited to participate in a study on the outcome of aseptic meningitis in infants in Baltimore, Maryland, from July 1986 through September 1990. Control subjects were identified from among infants living in the Baltimore area and were matched by age, sex, race, and maternal education. Age at enrollment ranged from birth to 24 months, with approximately 60% enrolling at less than 2 months of age and 85% enrolling at less than 4 months of age.

Infants in both the control and the experimental groups had comprehensive neurodevelopmental and psychometric evaluations soon after enrollment or when they were completely recovered from their acute illness and again when they were within 2 months of their 18-month and 30-month birthdays. The psychometric exam included the MDI administered by the same psychologist at all three visits. The neurodevelopmental exam included a standardized neurological evaluation and administration of the CAT/CLAMS. Both the psychologist and developmental pediatrician were blinded to results of previous testing.

The mean MDI scores were 101, 111, and 117 at the first, 18-month, and 30-month visits. The mean CAT/CLAMS scores were 103, 101, and 94 at the first, 18-month, and 30-month visits. The correlation coefficient between the CAT/CLAMS and the MDI improved with age. At the initial visit, no correlation ($\underline{r} = -.06$, $\underline{P} = .37$) was found; however, at the 18-month visit, the CAT/CLAMS correlated well with the MDI

(r = .66, P = .0001) and at the 30-month visit had an (r = .69, P = .0001). Like the Bayley and other infant intelligence tests, the predictive validity of the CAT/CLAMS was limited in very young infants but improved over time.

With the mandate for early intervention services, health care providers and developmental specialists need assessment tools to help them determine which children are eligible for intervention services. The data reported in this study favorably compared the CAT/CLAMS to the Bayley MDI. The CAT/CLAMS appeared to be a useful instrument for assessment of infants and toddlers, since it had similar test characteristics to the conventional psychometric measures and was easily and quickly administered. The study by Rossman et al. (1994) was pertinent to the current research study because nurse practitioners, who are pressed to perform more assessments, treatments, and referrals in increasingly less time, need to have access to developmental screening tools that are quick, valid, and reliable.

One additional study revealed that Sontag and Schacht (1994) explored "(a) parent perceptions of their information needs and their sources of information, (b) the nature of parent participation in early intervention and participation preferences, and (c) cultural differences in parents due to ethnicity" (p. 423). Three sets of research questions guided the study:

1. What kinds of information do parents need? What are their sources of information? What kinds of problems have they had getting information about their child?

2. What is the nature of parent participation in early intervention? What kinds of activities would help them be more involved?

3. Do parent responses to these questions differ by ethnic group?

(Sontag & Schacht, 1994, p. 423.)

Families (N = 536) of young children with developmental delays in a Southwestern state were interviewed. Comparative analyses were carried out for five ethnic groups including White, Hispanic, American Indian, Black, and Asian. The representation of White, Hispanic, American Indian, Black, and Asian ethnic groups in the study was similar to that in the state's general population and was representative of rural and urban families. Incomes of the participant families did not mirror the overall income distribution of families state-wide as there was significant under-representation of lower incomes and over-representation of higher incomes. Families with very low incomes, however, were not under-represented. Children with developmental delays in the study were younger than five years old with an average age of two years.

Twenty interviewers who had attended a training session administered a closed-ended format questionnaire in family homes or in places chosen by the families. The questionnaire had been devised by analyzing the literature and holding state-wide group discussions for issues confronting families of children with developmental delays, by critiques from professionals and group discussion participants, and by pilot-testing with ten families.

The question regarding parent information needs asked parents to choose one item from each of four information-needs categories. The most frequently chosen item (50%) was about the availability of services for children with developmental delays. In exploring who parents get information from, the researchers stated that "medical doctors were the only source identified by a clear majority of the respondents as providing them with

useful information about their child" (Sontag & Schacht, 1994, p. 424). In describing problems associated with information needs, many parents expressed that they had not been told what services were available and that the information they had gotten was often confusing, incomplete, or wrong. Results of the questions concerning parent participation included parents being active in securing and implementing services for their children and providing transportation to services. Eighty-nine percent of parents helped make decisions about their children's programs. Less than half the parents conveyed that they participated in program planning meetings; thirty to 40% of those parents who reported not participating also said that they wanted to participate. Thirteen percent of parents said they thought doctors should be responsible for coordinating services for their children or for making sure their children had all the services he or she needs. When answering questions related to activities that would increase participation, "the majority of parents reported that having all the information about what services are available and having more knowledge on how the system works would help them be more involved in meeting their child's special needs" (Sontag & Schacht, 1994, p. 428). Ethnic differences described by the researchers included American Indian and Hispanic parents having a greater need ($p = 0.01$) than White parents for information about how to get services. Of those three ethnic groups, American Indians most often reported ($p = 0.02$) not being told why a service could not be provided, and Hispanic parents were less likely to report feeling like they had been told what could be done for their child.

One conclusion drawn by the researchers included the importance of providing parents with information about what services are available for their children with developmental delays. Another was that information about rehabilitative, educational, and

family support services does not seem to be readily available to parents. Possible reasons given for this were that primary care providers do not know this information or do not perceive it as their responsibility to know.

This study had direct implications for the current research. Families depend on their primary health care provider for detection of delays and information on where to find services once a delay is suspected or confirmed. The family that does not get this information from their primary health care provider may not get it at all. Dissemination of information regarding developmental delays is a solemn responsibility of primary care nurse practitioners whose patients include infants and young children.

Another issue that arises when considering developmental delays is parental coping. Bright, Hayward, and Clements' (1997) quantitative study of coping strategies, self-esteem, and service use employed a series of self-report measures to examine coping responses in mothers of children with disabilities. Coping was defined in terms of cognitive appraisal of personal resources. All of the mothers had children who were involved in an early intervention program. The researchers hypothesized that the facility would also provide support for the mothers, possibly enhancing their coping abilities. One additional hypothesis was that those mothers who employed many positive coping strategies and few negative ones would display fewer symptoms of stress and a better quality of life.

Participants included the mothers of preschool children attending an early intervention program. Nineteen mothers whose children ranged in age from 2 to 5 completed a series of self-report measures of coping, general health, and self-esteem during a two-hour interview by Bright et al. (1997). Four teachers at the early intervention

program also rated each mother on a series of factors related to the mothers' ability to cope and her utilization of services.

Results of the Bright et al. (1997) study included all mothers falling within the normal range on the psychological adjustment scale. The health questionnaire was significantly correlated with self-esteem ($r = -0.70$, $p = 0.001$). Those mothers with poorer mental health had lower self-esteem scores. Coping was significantly correlated with the health questionnaire and with the self-esteem inventory ($r = 0.59$, $p = 0.005$, $r = 0.66$, $p = 0.001$, respectively). Those mothers who used more of the poor coping strategies had poorer mental health and lower self-esteem. Both the total coping score and the poor coping score were related to mental health and self-esteem.

Bright et al.'s (1997) study is meaningful for nurse practitioners serving children with developmental disabilities and their families. Using a family-centered, holistic approach, the nurse practitioner should be attuned to the stressors affecting all family members and be prepared to meet the health care needs associated with those stressors.

The literature was reviewed for current issues related to nurse practitioners' participation in developmental screening and referral to early intervention programs of children with developmental delays. Studies pertaining to developmental delays assessed costs of developmental screening, outcomes of participation in early intervention programs, cost-effectiveness of early intervention programs, parental needs, and parental coping mechanisms. The studies elucidated the importance of nurse practitioners' participation in developmental screening and referral of children with delays to early intervention programs. Developmental delays in children continue to be undetected, though, and necessary referrals to early intervention programs are not made.

Chapter III

Methodology

Statement of Purpose

The purpose of this study was to explore and describe the developmental screening and referral practices of pediatric and family nurse practitioners for children with developmental delays. In this chapter the design of the study will be described, including the setting, population and sample, instrumentation, procedure, and data analysis.

Design of the Study

A descriptive design was utilized for the study. According to Polit and Hungler (1995) descriptive research is used to observe, describe, and document phenomena. This design was appropriate as the developmental screening and referral practices of nurse practitioners were only described, and no correlations or causal inferences were made.

Setting

The setting for the study was Mississippi. Mississippi is a diverse state with a blend of rural and urban areas. The economy is derived from a variety of products and services ranging from agriculture to communications. Mississippi's last census, which was in 1990, revealed a population of 2,573,216. In the year 2000 the population is projected to be 2,695,400 (Molpus, 1993). Because of the prevalence of premature births and congenital anomalies (Mississippi State Department of Health, 1996), Mississippi

proved to be a most appropriate setting for the study. According to Shirley Miller, who was appointed by the Governor to the State Interagency Coordinating Council (personal communication, November 29, 1997), last year in Mississippi there were 1600 children birth to three years old who were identified by the Department of Health as being eligible for early intervention services. There were, however, only 400 active cases in early intervention programs certified by the Department of Mental Health. The population at risk for developmental delays was estimated to be another 400 children. According to these numbers, only one-fifth of the children in need of early intervention services are receiving them in Mississippi.

Pediatric and family nurse practitioners in Mississippi practice in a variety of settings including rural, urban, public, private, and school-based clinics as well as hospitals, and health departments. Operating within the practice regulations set forth by the Mississippi Board of Nursing, practitioners work with populations which include pediatric, adult, and geriatric patients. Nurse practitioners in Mississippi can make referrals independently (Dr. M. P. Curtis, President, Mississippi Board of Nursing, personal communication, February 11, 1998).

Population and Sample

Because of the independent nature of nurse practitioner practice in Mississippi and the holistic nature of nurse practitioner practice in general, nurse practitioners were chosen as the population for this research. The population was all pediatric and family nurse practitioners whose names appear on the 1997 list of advanced practice nurses currently certified as pediatric or family nurse practitioners in Mississippi from the Mississippi Board of Nursing. An estimate of the total number of nurse practitioners in

Mississippi is almost 600, and the number of pediatric and family nurse practitioners approximately 260 (L. Hamm, Graduate Nursing Faculty, Mississippi University for Women, personal communication, November 26, 1997). The sampling design was one of convenience. The sample was comprised of the first 150 nurse practitioners who responded to the Early Intervention Questionnaire.

Instrumentation

The Early Intervention Questionnaire (Appendix A) regarding developmental screening and referral practices for children with developmental delays was used to gather data for the study. The Early Intervention Questionnaire consisted of seven demographic questions and seventeen questions regarding services for children with developmental delays. Questions 8 - 22 were yes/no or checklist-type inquiries dealing with developmental screening and referral practices. Questions 23 and 24 were qualitative questions which solicited information on early intervention program communication and allowed nurse practitioners to share additional thoughts about early intervention programs. The instrument was developed specifically for this study. Questions on the instrument were drawn from literature reviews and professional experience and were designed to gather information needed to investigate the variables in the research question. While no validity or reliability have been established for the Early Intervention Questionnaire, the tool had face validity based on review by a panel of experts.

Frequencies and percentiles were employed to summarize and describe the quantitative data obtained. The Pearson's product-moment correlation statistic was calculated to identify relationships between demographic variables and screening and

referral practices. Content-analysis according to recurring themes was used to summarize responses to the open-ended questions.

Procedure

The researcher requested permission to conduct the study from the Committee on Use of Human Subjects in Experimentation of Mississippi University for Women. Upon obtaining approval (Appendix B), the researcher secured a list of pediatric and family nurse practitioners currently certified in Mississippi from the Mississippi Board of Nursing. The researcher mailed the questionnaire and a letter of introduction and informed consent (Appendix C) to all pediatric and family nurse practitioners in Mississippi. The letter of introduction and informed consent stated that returning the completed survey implied consent to participate in the research. A reminder postcard (Appendix D) was sent two weeks after the initial mailing of the questionnaire. Four weeks after the initial mailing of the questionnaire, the first 120 returned questionnaires were sorted according to quantitative and qualitative data. A response card (Appendix E) was included with the questionnaire and letter of introduction and informed consent in the initial mailing. Any practitioner interested in more information about early intervention programs indicated that interest and returned the card separately to receive additional information. Four weeks after the initial mailing, the researcher sent additional information to interested practitioners who returned response cards.

Data Analysis

Descriptive statistics including frequencies and percentiles were used to summarize and describe the quantitative data obtained. The Pearson's product-moment correlation statistic was calculated to identify relationships between demographic

variables and screening and referral practices. Responses to the open-ended questions were content-analyzed according to recurring themes.

Chapter IV

The Findings

The purpose of this study was to explore and describe the developmental screening and referral practices of pediatric and family nurse practitioners for children with developmental delays. A descriptive survey design was implemented for this study. The Early Intervention Questionnaire was utilized to obtain information from pediatric and family nurse practitioners regarding developmental screening and referral practices. Data from each question were analyzed using percentages and frequency distributions. The Pearson's product-moment correlation statistic was calculated to identify relationships between demographic variables and screening and referral practices. Content-analysis according to recurring themes was used to summarize responses to the open-ended items. The findings from the study are presented in this chapter.

Description of the Sample

A total of 258 surveys were mailed to pediatric and family nurse practitioners in Mississippi. The convenience sample consisted of 120 nurse practitioners who responded to the survey.

Distribution by nurse practitioner preparation

The educational preparation of the nurse practitioners in the sample was assessed. Professional certification was the initial nurse practitioner preparation for 12 (10.1%) of the respondents, 83 (69.7%) were initially prepared with Master's degrees, and 24

(20.2%) obtained their initial nurse practitioner preparation through Post-Master's certification. One respondent did not list his or her initial practitioner preparation. Also examined was the highest degree earned by the survey participants. Those results are presented in Table 1.

Table 1

Highest Degree Earned by the Participants

Degree	f	%
Diploma	5	4.2
Associate Degree in Nursing	1	0.8
Bachelor of Science in Nursing	2	1.7
Master's Degree in Nursing	103	85.8
Master's Degree in Other Field	3	2.5
Doctorate	6	5.0

Note. N = 120

Distribution by area of nurse practitioner certification

The 120 nurse practitioners who returned the survey represented 46% of the pediatric and family nurse practitioners in Mississippi. Composition of the sample by area of nurse practitioner certification can be seen in Table 2. The response rate for pediatric nurse practitioners was 54% (26 questionnaires mailed and 14 returned). Family nurse practitioners had a 46% response rate (232 questionnaires mailed and 106 returned).

Table 2

Composition of the Sample by Area of Nurse Practitioner Certification

Type of Nurse Practitioner	f	%
Pediatric	14	12.0
Family	106	88.0

Note. N = 120.

Distribution by years of practice as a nurse practitioner

The number of years of practice of the respondents was ascertained. Years of practice ranged from 1 to 25. There was a positively skewed distribution with about 69% of the respondents practicing for 5 years or less. The distribution by years of practice is presented in Table 3. One nurse practitioner did not give his or her number of years of experience.

Table 3

Distribution by Years of Practice as a Nurse Practitioner

Number of Years of Practice	f	%
0 - 5	82	68.9
6 - 10	20	16.8
11 - 15	7	5.9
16 - 20	7	5.9
21 - 25	3	2.5

Note. N = 119.

Distribution by area of practice location

The area of practice location of nurse practitioners was identified. Ninety-six (80%) of the respondents practiced in rural areas, while 24 (20%) practiced in urban areas.

Distribution by practice site location

The study surveyed the practice site locations of the pediatric and family nurse practitioners. The results are shown in Table 4.

Table 4

Distribution by Practice Site Location

Practice Site Location	f	%
College	5	4.2
Private Nurse Practitioner Clinic	6	5.0
Health Department	5	4.2
School Based Clinic	2	1.7
Rural Health Clinic	62	51.7
Collaborative Clinic with Physician	43	35.8
Hospital	24	20.0
Community Health	9	7.5
Other	7	5.8

Note. Many nurse practitioners worked in more than one practice setting.

Distribution by percentage of pediatric practice

The percentage of the nurse practitioners' practice that was comprised of pediatric patients was ascertained. The findings are shown in Table 5. The clinical practices of 67.8% of the respondents had 49% or less pediatric patients.

Table 5

Distribution by Percentage of Pediatric Practice

Percentage of Pediatric Patients in Practice	f	%
100%	12	10.2
75 - 99%	5	4.2
50 - 74%	21	17.8
25 - 49%	39	33.1
1 - 24%	41	34.7

Note. N = 118

Findings Related to the Research Questions

Two research questions were answered in this study. Descriptive statistics were generated to answer those questions.

The research questions were as follows:

1. What are the developmental screening practices of pediatric and family nurse practitioners?

2. What are the referral practices of pediatric and family nurse practitioners for children with developmental delays to early intervention programs?

The following data supply the answers to these research questions.

Performance of developmental screenings

The questionnaire revealed the developmental screening practices of pediatric and family nurse practitioners such as performing EPSDT, DDST, DPII, or Batelle on infants

and children under five years old. Fifty-two (43.3%) of the respondents replied that they did perform developmental screenings for infants and children under five years old, and 68 respondents (56.7%) did not.

Feelings of adequate preparation to perform developmental screenings

The pediatric and family nurse practitioners were questioned about whether or not they felt adequately prepared to perform developmental screenings on infants and children under five years old based on basic nursing and nurse practitioner educational programs. The answers revealed that 84 (70.0%) of the respondents felt adequately prepared to perform developmental screenings, and 35 (29.2%) did not feel adequately prepared. One respondent did not answer this question.

Familiarity with early intervention programs

The nurse practitioners were surveyed to determine if they were familiar with early intervention programs. The survey revealed that almost two-thirds of the respondents were familiar with early intervention programs. Seventy-five (63.0%) of the respondents were familiar with early intervention programs, while 44 (37.0%) were not. One practitioner did not answer this question.

Source of finding out about early intervention programs

Pediatric and family nurse practitioners who acknowledged being familiar with early intervention programs were asked to indicate how they found out about them. The results are disclosed in Table 6.

Table 6

Source of Finding Out About Early Intervention Programs

Source	f	%
Received information in mail	17	14.2
Had visit from early intervention program staff member	21	17.5
News media (radio, television, newspaper)	7	5.9
Workshop	15	12.5
Other	33	27.5

Note. Many respondents indicated more than one source of information.

Because of the importance of these sources of information to this research, referrals marked "other " were further grouped and analyzed according to frequency and percent. Those responses are presented in Table 7.

Table 7

Other Sources of Finding Out About Early Intervention Programs

Source	f	%
Through work experience	12	10.0
Through Health Department	4	3.3
Through colleague	7	5.8
Through experience of friend, relative, or self	4	3.3
Through formal education (undergraduate, graduate)	4	3.3
Knowledge of early intervention program in hometown	1	0.9
Through March of Dimes	1	0.9

Note. Respondents could mark more than one choice.

Knowledge of an early intervention program within 50 miles of practice site

Pediatric and family nurse practitioners were asked whether or not they knew of an early intervention program within 50 miles of their practice sites. Only about half of the nurse practitioners responded affirmatively. Sixty-one respondents (51.3%) reported knowing of an early intervention program within 50 miles of their practice sites, and 58 (48.7%) did not. One respondent did not answer this question.

Experience with an early intervention program

The respondents' professional and personal experience with early intervention programs was assessed. Less than half of the nurse practitioners reported having had experience with early intervention programs. Forty-eight respondents (40.7%) related

having had experience with early intervention programs, and 70 respondents (59.3%) reported no experience. Two respondents did not answer this question.

Positive or negative experiences with an early intervention program

Nurse practitioners who reported having had experience with an early intervention program were asked to categorize their experience as positive or negative. Forty-five (93.8%) of the nurse practitioners responding to this question reported positive experiences. Only 3 respondents (6.3%) reported negative experiences.

Experience with referring a child to an early intervention program

The researcher determined if respondents had ever referred a child to an early intervention program. Only slightly more than one-third of the nurse practitioners in the study had ever referred a child. Forty-five (37.5%) of the respondents reported having referred a child to an early intervention program, while 74 (61.7%) had never done so. One nurse practitioner did not respond to this question.

Reasons for not referring to early intervention programs

Pediatric and family nurse practitioners who had never referred a child to an early intervention program were asked to relate reasons why they had not done so. In Table 8 results of that question are presented.

Table 8

Reasons for Not Referring to Early Intervention Programs

Reason	f	%
Do not screen for developmental delays.	28	23.3
Do not know about early intervention programs.	34	28.3
Do not know of an early intervention program near practice.	33	27.5
Do not think early intervention program would help.	1	0.8
Too much paperwork involved in referring child to early intervention program.	1	0.8
Parents are not interested in early intervention programs.	0	0.0
Not cost effective to perform developmental screenings.	3	2.5
Physician preceptor does not support developmental screenings.	3	2.5
Other	12	10.0

Note. Nurse practitioners could mark more than one item.

Responses in "Other" category included not knowing the criteria or process for referral and not considering self qualified to screen for delays. Four answers had to do with the nurse practitioners' not seeing children in their practice site. Six respondents stated they had not had opportunities to refer children who needed services.

Experiencing problems with early intervention program referrals being accepted

Respondents' having problems with referrals of children to early intervention programs was examined. Six (13.6%) of the nurse practitioners who had referred children

to early intervention programs reported they had problems having their referrals accepted. Thirty-eight respondents (86.4%) had no problems. One nurse practitioner who had referred to an early intervention program did not answer this question.

Belief that early intervention program helped the child

The researcher assessed whether nurse practitioners who had referred children to early intervention programs believed that the programs had helped the children. Thirty-two (91.4%) of the nurse practitioners who responded to this question believed that the programs had been helpful to the children. Only 3 of the respondents did not believe the children had been helped by the early intervention programs. Nine practitioners who had referred children to early intervention programs did not answer the question. Several commented on the side of the questionnaire that they had not received any feedback or progress reports from the early intervention programs.

Belief that collaborating physician would support referring children to early intervention programs

Nurse practitioners were asked if they believed their collaborating physicians would be supportive of referring children to early intervention programs. The vast majority, 105 (95.5%) of the practitioners responded that they believed their collaborating physicians would support referrals of children to early intervention programs. Only 5 practitioners (4.5%) reported the belief that the doctors would not support referring children. Ten practitioners did not respond to this question.

Willingness to refer to early intervention programs if near practice site

The researcher asked whether nurse practitioners would refer children to early intervention programs if the program sites were located near the nurse practitioners'

practice sites. Only 5 respondents (4.5%) said they would not refer. One hundred five nurse practitioners (95.5%) reported they would refer children to early intervention programs if located near their practice sites. Ten practitioners did not respond to this question.

Issues regarding parents' acceptance of children's developmental delays

Nurse practitioners were asked to identify issues they deal with regarding parents' acceptance of children's developmental delays. Issues identified are disclosed in Table 9.

Table 9

Issues Regarding Parents' Acceptance of Children's Developmental Delays

Issue	f	%
Parents do not want to believe their children have developmental delays.	67	55.8
Parents readily accept the news that their children have developmental delays.	12	10.0
Parents believe their children will "grow out of it."	61	50.8
Parents report you have confirmed what they have suspected about their children.	49	40.8
Parents do not want their children "labeled."	50	41.7
Parents are eager for more information about services available for their children.	61	50.8
Parents feel guilty as if children have inherited developmental delays from them.	43	35.8
Other	12	10.0

Note. Respondents could choose more than one item.

Responses in the "other" column were answers such as "parents want help in any form" and "how to keep appointments, arrange multitude of trips, etc." One respondent reported "parental indifference due to low socio-economic level," and another said "guilty feelings of poor parental care." Five respondents said they did not deal with this issue.

One respondent checked "other" but did not list anything in the blank. Two final responses were of a slightly different nature and stated, "Parents want problems at times for secondary gain" and "They want SSI checks."

Willingness to attend educational program about early intervention programs, screening, and referral

Nurse practitioners were asked to indicate whether they would be willing to attend an educational program about early intervention programs, screening, and referral if one were offered near them or presented in their facility. One hundred seven (92.2%) of the respondents indicated that they would be willing to attend such a program. Only nine practitioners (7.5%) said they would not be willing to attend. Four respondents did not answer this question.

Correlations Among Variables

Several significant correlations existed among variables addressed in the study. There were significant positive correlations between years of experience as a nurse practitioner and both experience with early intervention programs ($r = .256$, $p = .003$) and referrals to early intervention programs ($r = .268$, $p = .002$); between knowledge of early intervention programs and both experience with early intervention programs ($r = .676$, $p = .000$) and referrals to early intervention programs ($r = .622$, $p = .000$); and between experience with early intervention programs and referrals to early intervention programs ($r = .753$, $p = .000$). There was a significant positive correlation between educational level and willingness to attend an educational program on early intervention programs, screening, and referral ($r = .162$, $p = .041$). A significant inverse correlation, though,

existed between knowledge of early intervention programs and willingness to attend an educational program ($r = -.159$, $p = .044$).

Responses to Qualitative Items

Two open-ended items were included to elicit information not obtainable by quantitative items. The first of these items asked the following: "How can early intervention program staff best communicate to you what their programs offer?" Responses were then content analyzed and grouped according to recurring responses. Grouped responses to the question are displayed in Table 10.

Table 10

Best Means of Communication from Early Intervention Program Staff to Nurse Practitioners

Means of Communication	f	%
Mail	29	24.1
Visit from early intervention program staff	28	23.3
Provide literature, pamphlet, brochure	22	18.3
Workshops, educational programs, inservices	22	18.3

Note. Nurse practitioners could suggest more than one means of communication.

Additional responses to the question referred to getting feedback from early intervention program staff. These included comments such as, "What I would like to see is the outcome of what has happened after these referrals. How has this helped the child? Often I make the referrals but sometimes I do not know what action was taken." and

"Feedback - I don't get feedback when I refer a child out - I don't know what - if anything - transpired from the referral." Two respondents suggested that an early intervention program open house would be an effective means of reaching nurse practitioners.

The second open-ended item stated: "If there is anything else about early intervention programs that you would like to share, please do so in the following space." A number of comments were made by nurse practitioners regarding their experiences with and perceptions of early intervention programs. Comments were content analyzed according to positive-type responses, lack-of-knowledge-type responses, and negative-type responses.

Several comments which reflected positive experiences and supportive attitudes included: "Good experience with program so far. They work hard in my area to meet the needs." "The early intervention program is my best source of referral for suspected delays." "I am very supportive of early intervention." "We are very lucky to have an excellent outreach worker...She made an excellent presentation on her initial visit and has been invaluable whenever I referred a patient."

Some comments demonstrated a lack of knowledge about early intervention programs: "My knowledge on this subject is very limited. I would love to know more and utilize the services in my practice." "Not knowledgeable."

Some comments reflected negative experiences with developmental screenings and early intervention: "I proposed to my employer to start EPSDT screenings, but they denied the request due to poor compensation ($$) (Private Hospital)." "We have not had good luck with First Steps following through." "When I refer to the Developmental Clinic, the paperwork is so overwhelming to the parents, some give up."

The data collected and analyzed for this study have been presented in Chapter IV. Demographic characteristics of the respondents were examined. Statistical findings used to answer the research questions were presented, and answers to open-ended qualitative items were given. Chapter V contains an interpretation of the data described in this chapter along with conclusions, limitations, and recommendations for future research.

Chapter V

The Outcomes

Early intervention programs provide essential services for children with developmental delays. These services include physical, occupational, and speech-language therapy, education, and parent training and support. Empirical evidence has shown that children with developmental delays benefit from participation in early intervention programs (Britain et al., 1995). Research has also demonstrated that parents of children with developmental delays rely on health care providers as a primary source of information regarding resources for their children (Sontag & Schacht, 1994).Yet many children with developmental delays are not referred to early intervention programs. The purpose of this descriptive study was to explore and describe nurse practitioners' developmental screening and referral practices for children with developmental delays to early intervention programs. Orem's self-care deficit theory of nursing provided the theoretical framework. The study was guided by two research questions: (1) What are the developmental screening practices of pediatric and family nurse practitioners? and (2) What are the referral practices of pediatric and family nurse practitioners for children with developmental delays to early intervention programs. A convenience sample of 120 pediatric and family nurse practitioners certified with the Mississippi Board of Nursing were surveyed using the Early Intervention Questionnaire. Descriptive statistics were generated to describe current developmental screening and referral practices of pediatric

and family nurse practitioners for children with developmental delays. Responses to the instrument were analyzed using descriptive statistics including frequencies, percentages, and the Pearson's product-moment correlation. Additionally, open-ended questions were analyzed using content analysis.

This chapter includes a discussion of the findings of the study. The conclusions, implications, and recommendations which evolved from those findings also are presented.

Summary and Discussion of Significant Findings

The sample for this study consisted of nurse practitioners who responded to the Early Intervention Questionnaire which was mailed to 258 pediatric and family nurse practitioners in Mississippi. A final sample of 120 was obtained. The sample represented 54% (14) of the approximate 26 pediatric nurse practitioners in Mississippi and 46% (106) of the approximate 232 family nurse practitioners in Mississippi. These demographic findings indicate that the sample was quite representative of the pediatric and family nurse practitioners in Mississippi.

The percentage of respondents with Master's Degrees in Nursing was 85.8, and 5% held Doctoral Degrees, indicating that a large portion of the sample held advanced degrees from institutions of higher learning. Though highly educated, the vast majority of participants in the survey (68.9%) had 5 years or less experience as a nurse practitioner. Almost half of the respondents (44.5%) had 3 or less years of nurse practitioner experience.

Nurse practitioner practice site locations also were ascertained. Eighty percent (96) of the nurse practitioners in the sample classified themselves as rural practitioners,

while only the remaining 20% (24) practiced in urban areas of the state. Consistent with this finding, the majority of the respondents (51.7%) held positions in rural health clinics. Only 7 nurse practitioners worked at school-based or health department clinics, sites which traditionally serve pediatric clientele. About 2/3 of the respondents ($n = 80$) had less than half of their total clientele who were classified as pediatric, and only 12 (10.0%) nurse practitioners who responded had total pediatric clinical practices.

These demographic variables may have had a substantial impact on the findings related to the research questions for this study. Research question #1 was "What are the developmental screening practices of pediatric and family nurse practitioners?" Less than half of the respondents (43.3%) reported performing developmental screenings on children under five years old. Although only 52 nurse practitioners reported performing developmental screenings, 84 (70.6%) related feeling adequately prepared to do so. It is evident that overall screening rates by nurse practitioners for developmental delays are low despite adequate nurse practitioner educational preparation to perform screenings. Perhaps, then, a lack of experience contributed to the low screening rate of Mississippi's nurse practitioners for children with developmental delays. This supposition was statistically supported by a positive correlation between more years of experience as a nurse practitioner and experience with early intervention programs ($r = .256$, $p = .003$). Another possible explanation for few nurse practitioners performing developmental screening is that the low rate was merely a statistical reflection of the smaller percentage of pediatric clients in the respondents' practices.

Bright et al. (1997) cited concern that primary care providers do not know essential information about early intervention or do not perceive it as their responsibility

to know. However, in spite of the circumstances of practice, it is the responsibility of nurse practitioners who do see pediatric patients to screen for developmental delays.

Experienced nurse practitioners who serve pediatric clientele should take seriously the responsibility of demonstrating to less-experienced nurse practitioners the essential role of screening. Support was given to this concept by the finding that 27.5% of nurse practitioners learned of early intervention programs through work experience, colleagues, friends, or educational experiences. While this represents only about 1/4 of the means through which nurse practitioners find out about early intervention programs, it illustrates that interpersonal communication comprises a substantial part of the way nurse practitioners learn of early intervention programs. Experienced nurse practitioners and nurse practitioner educators must emphasize that screening for developmental delays is imperative.

Screening and discovery of developmental delays are meaningless unless timely and appropriate referrals follow. The second research question for this study was "What are the referral patterns of pediatric and family nurse practitioners for children with developmental delays?" Glascoe at al. (1997) cited poor third-party reimbursement as one reason for primary care providers' failure to perform developmental screenings to detect delays in children. However, the current researcher's findings did not support costs as a barrier to screening, with only 2.5% of the respondents citing cost effectiveness as a referral issue. Only one respondent specifically listed costs as a problem, stating, "I proposed to my employer to start EPSDT screenings, but they denied the request due to poor compensation." Neither paperwork (0.8%) nor lack of physician support (0.8%) were cited as reasons for failure to screen or refer children with developmental delays.

Among those who had referred, 98.3% had a positive experience with early intervention program, negating bad experiences as a barrier. Thirty-two (91.4%) of those nurse practitioners who had made referrals to early intervention programs believed that the child had been helped by participation in the early intervention program, ruling out low outcome expectations as a referral constraint. Only 45 respondents (37.8%), though, had ever referred children to an early intervention program. Also, only about half of the respondents (51.3%) knew of an early intervention program within 50 miles of their practice site, and less than half (40.7%) had ever had any experience with an early intervention program.

Again, the issue of nurse practitioners simply not having knowledge of early intervention programs emerges. This finding lends empirical validity to the assumption by early intervention expert (S. Miller, personal communication, November 29, 1997) that early intervention program staff is doing a mediocre job of getting the word out. This mediocre job might account for new, inexperienced nurse practitioners not knowing about early intervention programs.

If lack of knowledge about early intervention programs is the problem, though, then it would seem to follow that simply informing nurse practitioners about the existence of the programs would be the solution. Findings related to how nurse practitioners get their information indicates that the issue is far from simple. One interesting finding was that nurse practitioners said the best methods for contacting them with information about early intervention programs were mailouts (14.2%), visits (21.0%), and workshops (15.0%). The nurse practitioners who were familiar with early intervention programs also said that mailouts, visits, and workshops were the main ways they found out about the

programs. This leads to the question of why the uninformed nurse practitioners did not find out by the same means that the informed nurse practitioners did. Considering the low level of experience among respondents, the issue may be that new nurse practitioners are not added to early intervention program mailing lists. Both nurse practitioners and early intervention program personnel could work more diligently to insure that vital health information regarding the care of children is received by all health care providers in the state.

Another finding was that although 63.0% of nurse practitioners reported being familiar with early intervention programs, they made statements that reflected incorrect knowledge about the programs. A comment exemplifying misinformation was: "On the children most have 2 deficits so this eliminates many children who probably still need help." Criteria for most early intervention programs are delays in 2 or more areas or at risk for delays (Hudspeth Regional Center, 1995).

There were significant positive correlations between years of experience as a nurse practitioner and both experience with early intervention programs (r = .256, p = .003) and referrals to early intervention programs (r = .268, p = .002); between knowledge of early intervention programs and both experience with early intervention programs (r = .676, p = .000) and referrals to early intervention programs (r = .622, p = .000); and between experience with early intervention programs and referrals to early intervention programs (r = .753, p = .000). There was a significant positive correlation between educational level and willingness to attend an educational program on early intervention programs, screening, and referral (r = .162, p = .041). A significant negative correlation, though, existed between knowledge of early intervention programs and

willingness to attend an educational program (r = -.159, p = .044). This implies that a nurse practitioner who already knows about early intervention program is unlikely to attend a program to learn additional or repetitive information.

These findings point to the overall issue of nurse practitioners failing to screen for developmental delays and refer children with developmental delays to early intervention programs. Nurse practitioners are not knowledgeable about developmental screening and referral for children with developmental delays. These failures and lack of knowledge result in losses for children which include losses in precious time during the first few formative years when young brains are most malleable, losses in learning abilities, and losses in quality of life.

With many questions still unanswered, there were some answers given about why nurse practitioners who do know about early intervention programs do not refer children to them. Eiserman (1995) provided support for early intervention for children with developmental delays and underscored the importance of parental involvement. Yet parents appear to be one of the biggest barriers to children's involvement in early intervention. When asked "What issues do you deal with regarding parents' acceptance of developmental delays?," 55.8% of nurse practitioners reported that parents do not want to believe their children have developmental delays. Sixty-one respondents (50.8%) said that parents believe their children will grow out of it. The nurse practitioners' perception validated the Britain et al. (1995) statement that late admissions of children were often related to procrastination by parents. On the other hand, 61 of the respondents (50.8%) felt that parents are eager for information about services available for their children.

Free Hand Press, Inc. (1995) emphasized the importance of early intervention and described the consequences of delaying intervention. Only 45 respondents (37.8%), though, had ever referred to an early intervention program. Bright et al. (1997) pointed out that information about services does not seem to be readily available to parents and emphasized the importance of providing parents with this vital information. Sontag and Schacht (1994) emphasized that parents ask medical providers for necessary information about services available for their children, yet only about half of the respondents (51.3%) knew of an early intervention program within 50 miles of their practice site, and less than half (40.7%) had ever had any experience with an early intervention program.

Nurse practitioners must become informed about developmental screening and early intervention programs. If the nurse practitioners do not know, then parents cannot know. If nurse practitioners do not refer children with developmental delays to early intervention programs, the immediate consequences will be suffered by the children, and the long-term consequences will be borne by both the children and society.

Conclusions

The following conclusions were derived from the findings of this study:

1. Less than half (43.3%) of pediatric and family nurse practitioners in Mississippi reported performing developmental screenings on children under five years old, although 70.6% felt adequately prepared to do so.

2. Less than two-thirds (63.0%) of pediatric and family nurse practitioners related being familiar with early intervention programs, and only slightly more than one-third (37.8%) had ever referred to an early intervention program.

3. Those nurse practitioners who reported familiarity with early intervention programs most frequently listed visits, mail, and workshops as the methods by which they found out about early intervention programs.

4. The overwhelming majority of nurse practitioners who had experience with early intervention programs reported positive experiences (93.8%), and most nurse practitioners (91.4%) who had referred to early intervention program thought the program had helped the child(ren).

5. Most nurse practitioners (92.2%) reported a willingness to attend an educational program about early intervention programs, screening, and referral.

Limitations

The limitations in this study were both internal and external. The greatest threat to internal validity was a lack of randomization. Sample selection was restricted to the number of subjects who responded to the survey. The sampling design was one of convenience, therefore a true representation of nurse practitioners must be questioned. Intervening variables may have skewed responses and thus affected the external validity of the study. The relative inexperience of the respondents limited the ability to generalize the findings outside of the state of Mississippi. Responses may have been influenced by respondents' desire for the researcher to have a good outcome in the research project. For example, one respondent commented, "I don't see kids...I just filled it (The Early Intervention Questionnaire) out so you could have a survey returned."

The instrument was researcher designed and had only face validity. This was the first time the instrument had been used in a study. The instruments was self-administered, and data were not validated. Certain demographic items did not allow for maximum

clarity. For example, question #1 asked "What is your nurse practitioner preparation?" and gave "Certificate," "Master's," and "Post Master's Certification" as answer options. One respondent's original nurse practitioner certification was a Master's Degree as a geriatric nurse practitioner. His or her family nurse practitioner certification was obtained Post Master's Degree. The options did not allow for an absolutely correct answer. Question #7, ascertaining the percentage of practice that is pediatric, might have allowed for clearer responses if one answer choice had included 0%. Two respondents did not answer this question, and one wrote in "0.1%" beside the choices given. More useful information could have been obtained if Question #8, "Do you perform developmental screenings...on infants and children under five years old?" had been followed by a multiple choice/check all that apply question asking "Why not?" for those who responded "No" to Question #8.

Implications for Nursing

A number of implications for nursing science were derived from this study. Implications are suggested for nursing theory, research, education, and practice.

Theory. Nursing theory is tested through research. Findings from previous studies using Orem's self-care deficit theory of nursing were validated by the findings of this research. This study revealed that over half (61.7%) of the nurse practitioners in the study had never referred a child to an early intervention program. These nurse practitioners are failing to facilitate the maximum self-care abilities of children with developmental delays. The results of this study serve to encourage the continued use of the Orem model as a conceptual framework for assessing the developmental screening and referral

practices of pediatric and family nurse practitioners for children with developmental delays.

Research. Although the benefits of participation in early intervention programs by children with developmental delays is fairly well documented in the literature, the role that nurse practitioners play in the detection of developmental delays and referring children for services is not clearly defined. The findings from this study suggest that more research is needed to establish factors that motivate nurse practitioners to perform developmental screening and make appropriate referrals for children with developmental delays.

Education. Findings from this study revealed that while 70.6% of nurse practitioners felt adequately prepared to perform developmental screenings based on their educational program, only 43.3% actually performed developmental screenings. This indicates a need for educators of nurse practitioners to incorporate information into curricula in schools of nursing regarding the outcomes of children who participate in early intervention programs versus those who do not in terms of quality of life and costs to society. Other findings were that only 63.0% of nurse practitioners were familiar with early intervention programs, only 40.7% had any experience with an early intervention program, and only 37.8% had ever referred to an early intervention program, further demonstrating the need for inclusion of early intervention program information in continuing education programs for nurse practitioners.

Practice. Nurse practitioners provide holistic, family-centered care based on health maintenance and disease/complication prevention. Nurse practitioners are ideally suited for identifying children with or at risk for developmental delays and for making

appropriate referrals for services for those children. Nurse practitioners need current information on available services and improved networking with early intervention program staff. Advances in networking might be accomplished by meetings between nurse practitioners and early intervention program staff, through early intervention program staff visits to nurse practitioner offices, nurse practitioners attending open houses sponsored by early intervention programs, or nurse practitioners inviting early intervention program staff to present at special interest group meetings, conventions, or other educational meetings. Experienced nurse practitioners must assume the responsibility of mentoring inexperienced nurse practitioners to impress upon them the importance of screening and referring children with developmental delays. Nurse practitioners must strive to lift the barriers of parental resistance to children's participation in early intervention programs. Parents must be educated by nurse practitioners about the benefits of early intervention program participation and the consequences of not intervening early. If these goals are not accomplished, developmental delays will not be detected in countless children, and children with delays will not receive the essential services provided by early intervention programs. The children will suffer, and society as a whole will suffer.

Recommendations

Nursing Research

Based on the findings of this study, the following recommendations are made for future nursing research:

1. Conduction of a qualitative study to explore nurse practitioners' impressions of and needs related to early intervention programs.

2. Conduction of a study to determine effectiveness of different means of reaching/communicating with nurse practitioners and other primary health care providers.

3. Replication of this study with pediatricians and family practice physicians.

4. Conduction of a longitudinal study regarding outcomes of children who participate in early intervention programs versus those who do not.

5. Conduction of research to explore facilitators and barriers to parents' receptiveness to their children's involvement in early intervention programs.

6. Conduction of more research using Dorothea Orem's self-care deficit theory of nursing as a conceptual framework.

7. Publication of this study and other studies to document nurse practitioners' developmental screening and referral practices for children with developmental delays.

Nursing Practice

Based on the findings of this study, the following recommendations are made for future nursing practice:

1. Utilization of Orem's self-care deficit theory of nursing as a framework for practice by nurse practitioners in primary care.

2. Utilization of developmental screening tools to detect children with or at risk for developmental delays.

3. Education of nurse practitioners on benefits of participation in early intervention programs by children with developmental delays.

4. Education of nurse practitioners on the referral process to early intervention programs.

5. Facilitation of improved networking between nurse practitioners and early intervention program staff.

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Appendix A

Early Intervention Questionnaire

Early Intervention Questionnaire

1. What is your nurse practitioner preparation?
   _____Certificate _____Master's _____Post Master's Certification

2. What is your highest degree earned?
   _____Diploma _____ADN _____BSN
   _____MSN _____PhD _____EdD
   _____DNS _____Other (specify) _____

3. What is your area of nurse practitioner certification?
   _____Family _____Pediatric

4. How many years have you practiced as a nurse practitioner? _____

5. Is the area in which your practice is located considered to be _____rural or _____urban?

6. What is your practice site location? (check all that apply)
   _____College _____Rural Health Clinic
   _____Private NP Clinic _____Collaborative Clinic with Physician
   _____Health Dept. _____Hospital
   _____School Based Clinic _____Community Health
   _____Other (specify) _____

7. What percentage of your practice is pediatric?
   _____100%
   _____75-99%
   _____50-74%
   _____25-49%
   _____1-24%

8. Do you perform developmental screenings such as EPSDT, DDST, DP II, or Batelle on infants and children under five years old?
   _____Yes _____No

9. Based on your educational program, do you feel adequately prepared to perform developmental screenings on infants and children under five years old?
   _____Yes _____No

10. Are you familiar with early intervention programs?
    _____Yes _____No

11. If you answered "yes" to #10, how did you find out about early intervention programs? (check all that apply)
_____Received information in mail
_____Had visit from early intervention program staff member
_____Radio
_____Television
_____Newspaper
_____Workshop
_____Other (please list) _____

12. Do you know of an early intervention program located within 50 miles of your practice site?
_____Yes _____No

13. Have you had any experience with an early intervention program?
_____Yes _____No

14. If you answered "yes" to #13, was your experience _____positive or _____negative?

15. Have you ever referred a child to an early intervention program?
_____Yes _____No

16. If you answered " no" to #15, why not? (check all that apply)
_____I do not screen for developmental delays.
_____I do not know about early intervention programs.
_____I do not know of an early intervention program near my practice.
_____I do not think an early intervention program would help.
_____There is too much paperwork involved in referring a child to an early intervention program.
_____Parents are not interested in early intervention programs.
_____It is not cost effective for me to perform developmental screenings.
_____My physician preceptor does not support my developmental screenings.
_____Other (specify) _____

17. If you answered "yes" to #15, did you have any problems having your referral accepted?
_____Yes _____No

18. If you answered "yes" to #15, do you think the early intervention program has helped the child?
_____Yes _____No

19. Do you believe your preceptor would be supportive of referring children to early intervention programs?
_____Yes _____No

20. If early intervention programs were located near your practice site, would you refer children to them?
_____Yes _____No

21. What issues do you deal with regarding parents' acceptance of developmental delays? (check all that apply)
_____Parents do not want to believe their children have developmental delays.
_____Parents readily accept the news that their children have developmental delays.
_____Parents believe their children will "grow out of it."
_____Parents report you have confirmed what they have suspected about their children.
_____Parents do not want their children "labeled."
_____Parents are eager for information about services available for their children.
_____Parents feel guilty as if children have inherited developmental delays from them.
_____Other (please list) _____

22. Would you be willing to attend an educational program about early intervention programs, screening, and referral if one were offered near you or presented in your facility?
_____Yes _____No

23. How can early intervention program staff best communicate to you what their programs offer?

_____

_____

_____

_____

24. If there is anything else about early intervention programs that you would like to share, please do so in the following space:

_____

_____

_____

_____

If you would like more information on early intervention programs, please return the enclosed postcard separately with your name and address. I will be happy to send you information.

Appendix B

Approval of Committee on Use of Human Subjects in Experimentation of Mississippi University for Women

MISSISSIPPI UNIVERSITY FOR WOMEN
Columbus, MS 39701

Office of the Vice President for Academic Affairs
Eudora Welty Hall
P.O. Box W-1603
(601) 329-7142

April 8, 1998

Ms. Terri Smith
c/o Graduate Program in Nursing
Campus

Dear Ms. Smith:

I am pleased to inform you that the members of the Committee on Human Subjects in Experimentation have approved your proposed research as submitted.

I wish you much success in your research.

Sincerely,

Susan Kupisch, Ph.D.
Vice President
for Academic Affairs

SK:wr

cc: Mr. Jim Davidson
Dr. Mary Pat Curtis
Ms. Lorraine Hamm

Appendix C

Letter of Introduction and Informed Consent

Letter of Introduction and Informed Consent

Dear Nurse Practitioner:

My name is Terri Smith. I am a registered nurse and graduate student at Mississippi University for Women. I am conducting a research study concerning the developmental screening and referral practices of pediatric and family nurse practitioners for children with developmental delays. Your name was chosen from the list of pediatric and family nurse practitioners currently certified in Mississippi. I am requesting that you participate in this study. Although there is no direct benefit to you for participation, information gained from this study might ultimately lead to the improvement of services for children with developmental delays.

Participation is completely voluntary, and your anonymity will be maintained as no names are included on the questionnaire and no numerical system is being utilized. The completion and return of the questionnaire will indicate your agreement to participate.

I appreciate your willingness and time in completing this questionnaire.

Sincerely,

Terri Smith

Appendix D

Reminder Postcard

Reminder Postcard

Dear Nurse Practitioner:

About two weeks ago I sent you a questionnaire regarding developmental screening and referral practices of pediatric and family nurse practitioners for children with developmental delays. If you have already completed and returned the questionnaire, thank you for your participation. If you have not, will you please take a few minutes to complete the questionnaire and return it in the stamped envelope? Thank you for your help.

Sincerely,

Terri Smith

Appendix E

Response Card

Response Card

Dear Nurse Practitioner:

If you are interested in receiving more information about early intervention programs, please return this stamped postcard separately from your questionnaire. I will send you information in about four weeks. Thank you for your interest and participation.

Sincerely,

Terri Smith

Please send information about early intervention programs to:

Name_____

Address_____

City, State, Zip_____